

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: DAVID R. WELLAND, ET AL.

Filed: Herewith

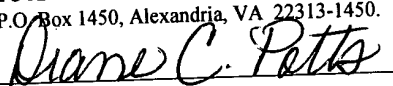
Title: METHOD AND APPARATUS FOR OPERATING A PLL WITH A  
PHASE DETECTOR/SAMPLE HOLD CIRCUIT FOR SYNTHESIZING  
HIGH-FREQUENCY SIGNALS FOR WIRELESS  
COMMUNICATIONS

Serial No.: Unknown

Prior Art Unit: 2684

Prior Examiner: Gesesse, Tilahun

Atty Dkt: SILA:035C2

|                                                                                                                                                                                                                                                                                                        |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| <b>NUMBER: EV302899806US</b>                                                                                                                                                                                                                                                                           |                        |
| I hereby certify that this paper or fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service, postage prepaid, under 37 CFR 1.10 on the date indicated below and is address to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450. |                        |
| <br>Signature                                                                                                                                                                                                        | <u>10-8-03</u><br>Date |

**INFORMATION DISCLOSURE STATEMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

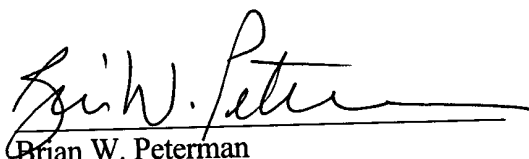
Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98, it is respectfully requested that this Information Disclosure Statement be entered and the document(s) listed on attached Form PTO-1449 be considered by the Examiner and made of record.

In accordance with 37 C.F.R. §§ 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be an admission that (a) the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b); and/or (b) that the information cited is, or is considered to be prior art.

The present Information and Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is hereby authorized to deduct said fees from Deposit Account No. 10-1205/SILA:035C2.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Brian W. Peterman", is written over a horizontal line.

Brian W. Peterman

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**Form PTO-1449** (modified)Atty. Docket No.  
SILA:035C2Serial No.  
Unknown

List of Patents and Publications for Applicant's

Applicant  
David R. Welland and Caiyi Wang**INFORMATION DISCLOSURE STATEMENT**

(Use several sheets if necessary)

Filing Date:  
HerewithGroup:  
UnknownU.S. Patent Documents  
See Pages 1-5Foreign Patent Documents  
See Page 5Other Art  
See Pages 5-6**U.S. Patent Documents**

| Exam. Init. | Ref. Des. | Document Number | Date     | Name             | Class | Sub Class | Filing Date if App. |
|-------------|-----------|-----------------|----------|------------------|-------|-----------|---------------------|
|             | A1        | 4,179,670       | 12/18/79 | Kingsbury        | 331   | 10        | 1/27/78             |
|             | A2        | 4,204,174       | 5/20/80  | King             | 331   | 10        | 11/9/78             |
|             | A3        | 4,686,488       | 8/11/87  | Attenborough     | 331   | 2         | 1/31/86             |
|             | A4        | 4,758,802       | 7/19/88  | Jackson          | 331   | 10        | 2/21/86             |
|             | A5        | 4,800,432       | 1/24/89  | Barnett et al.   | 358   | 160       | 10/24/86            |
|             | A6        | 5,055,802       | 10/8/91  | Hietala et al.   | 331   | 16        | 4/30/90             |
|             | A7        | 5,079,521       | 1/7/92   | Gaskell et al.   | 331   | 1         | 11/21/90            |
|             | A8        | 5,224,132       | 6/29/93  | Goldberg         | 377   | 48        | 1/17/92             |
|             | A9        | 5,379,003       | 1/3/95   | Bizen            | 331   | 117       | 12/9/93             |
|             | A10       | 5,446,767       | 8/29/95  | Nakagawa et al.  | 375   | 376       | 4/20/93             |
|             | A11       | 5,517,534       | 5/14/96  | Knierim          | 375   | 371       | 11/14/94            |
|             | A12       | 5,534,825       | 7/9/96   | Goma et al.      | 331   | 117       | 4/28/95             |
|             | A13       | 5,539,359       | 7/23/96  | Goma             | 331   | 117       | 3/29/95             |
|             | A14       | 5,576,667       | 11/19/96 | Goma             | 331   | 117       | 11/21/95            |
|             | A15       | 5,581,584       | 12/3/96  | Inoue et al.     | 375   | 376       | 7/2/94              |
|             | A16       | 3,571,743       | 3/23/71  | Menkes           | 331   | 11        |                     |
|             | A17       | 3,899,746       | 8/12/75  | Gammel           | 331   | 2         |                     |
|             | A18       | 4,009,448       | 2/22/77  | Hopwood et al.   | 331   | 4         |                     |
|             | A19       | 4,099,137       | 7/4/78   | Alm, Jr., et al. | 331   | 16        |                     |
|             | A20       | 4,805,198       | 2/14/89  | Stern et al.     | 375   | 118       |                     |
|             | A21       | 4,888,564       | 12/19/89 | Ishigaki         | 331   | 1         |                     |

**Examiner:****Date Considered:**

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|                                                                                                                                                                                 |                                              |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------|
| <b>Form PTO-1449</b> (modified)<br><br>List of Patents and Publications for Applicant's<br><br><b>INFORMATION DISCLOSURE STATEMENT</b><br><br>(Use several sheets if necessary) | Atty. Docket No.<br>SILA:035C2               | Serial No.<br>Unknown |
|                                                                                                                                                                                 | Applicant<br>David R. Welland and Caiyi Wang |                       |
|                                                                                                                                                                                 | Filing Date:<br>Herewith                     | Group:<br>Unknown     |

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|----------------------------------------|----------------------------------------|----------------------------|
| U.S. Patent Documents<br>See Pages 1-5 | Foreign Patent Documents<br>See Page 5 | Other Art<br>See Pages 5-6 |
|----------------------------------------|----------------------------------------|----------------------------|

| U.S. Patent Documents |           |                 |          |                   |       |           |                     |
|-----------------------|-----------|-----------------|----------|-------------------|-------|-----------|---------------------|
| Exam. Init.           | Ref. Des. | Document Number | Date     | Name              | Class | Sub Class | Filing Date if App. |
|                       | A22       | 5,315,269       | 5/24/94  | Fujii             | 331   | 1         |                     |
|                       | A23       | 5,495,205       | 2/27/96  | Parker et al.     | 331   | 1         |                     |
|                       | A24       | 5,625,325       | 4/29/97  | Rotzoll et al.    | 331   | 16        |                     |
|                       | A25       | 5,648,744       | 7/15/97  | Prakash et al.    | 331   | 11        |                     |
|                       | A26       | 5,686,864       | 11/11/97 | Martin et al.     | 331   | 1         |                     |
|                       | A27       | 5,739,730       | 4/14/98  | Rotzoll           | 331   | 177       |                     |
|                       | A28       | 5,852,384       | 12/22/98 | Sakakura et al.   | 331   | 48        |                     |
|                       | A29       | 5,856,763       | 1/5/99   | Reeser et al.     | 331   | 49        |                     |
|                       | A30       | 5,936,474       | 8/10/99  | Rousselin         | 331   | 34        |                     |
|                       | A31       | 5,157,358       | 10/20/92 | Benson            | 332   | 100       |                     |
|                       | A32       | 4,205,272       | 5/27/80  | Kumagai           | 455   | 83        |                     |
|                       | A33       | 5,758,276       | 5/26/98  | Shirakawa, et al. | 455   | 314       |                     |
|                       | A34       | 4,980,653       | 12/25/90 | Shepherd          | 331   | 15        |                     |
|                       | A35       | 5,909,150       | 10/23/97 | Kostelnik, et al. | 331   | 34        |                     |
|                       | A36       | 4,713,631       | 12/15/87 | Enderby, et al.   | 331   | 15        |                     |
|                       | A37       | 3,538,450       | 11/03/70 | Andrea, et al.    | 331   | 10        | 11/4/68             |
|                       | A38       | 4,484,153       | 11/20/84 | Borras, et al.    | 331   | 10        | 4/6/81              |
|                       | A39       | 4,602,220       | 7/22/86  | Kurihara          | 331   | 19        | 8/14/85             |
|                       | A40       | 4,893,087       | 1/9/90   | Davis             | 328   | 14        | 1/7/88              |
|                       | A41       | 4,905,306       | 2/27/90  | Anderson          | 455   | 191       | 2/26/88             |
|                       | A42       | 4,926,144       | 5/15/90  | Bell              | 332   | 124       | 9/29/88             |

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UnknownU.S. Patent Documents  
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| Exam. Init. | Ref. Des. | Document Number | Date     | Name             | Class | Sub Class | Filing Date if App. |
|-------------|-----------|-----------------|----------|------------------|-------|-----------|---------------------|
|             | A43       | 4,998,077       | 3/5/91   | Nanni et al.     | 331   | 99        | 12/20/89            |
|             | A44       | 5,034,703       | 7/23/91  | Schumacher       | 331   | 2         | 7/11/90             |
|             | A45       | 5,036,295       | 7/30/91  | Kamitani         | 331   | 10        | 7/30/90             |
|             | A46       | 5,117,206       | 5/26/92  | Imamura          | 331   | 158       | 12/4/90             |
|             | A47       | 5,175,884       | 12/29/92 | Suarez           | 455   | 260       | 6/1/90              |
|             | A48       | 5,281,927       | 1/25/94  | Parker           | 331   | 1A        | 5/20/93             |
|             | A49       | 5,369,376       | 11/29/94 | Leblebicioglu    | 331   | 8         | 11/29/91            |
|             | A50       | 5,644,270       | 7/1/97   | Moyer et al.     | 331   | 34        | 3/15/96             |
|             | A51       | 5,691,669       | 11/25/97 | Tsai et al.      | 331   | 17        | 1/11/96             |
|             | A52       | 5,740,524       | 4/14/98  | Pace et al.      | 455   | 232.1     | 12/14/95            |
|             | A53       | 5,748,043       | 5/5/98   | Koslov           | 331   | 1A        | 11/1/96             |
|             | A54       | 5,808,531       | 9/15/98  | Nakano           | 334   | 15        | 11/8/96             |
|             | A55       | 5,844,868       | 12/1/98  | Takahashi et al. | 369   | 6         | 3/26/97             |
|             | A56       | 5,867,069       | 2/2/99   | Kiser            | 331   | 96        | 6/9/98              |
|             | A57       | 5,898,345       | 4/27/99  | Namura et al.    | 331   | 177 V     | 7/14/97             |
|             | A58       | 5,963,100       | 10/5/99  | Tolson et al.    | 331   | 17        | 2/24/98             |
|             | A59       | 5,705,955       | 1/6/98   | Freeburg et al.  | 331   | 14        | 12/21/95            |
|             | A60       | 4,926,140       | 05/15/90 | Schenberg        | 331   | 1 A       | 7/19/89             |
|             | A61       | 5,038,117       | 08/06/91 | Miller           | 331   | 16        | 9/7/90              |
|             | A62       | 5,258,720       | 11/02/93 | Tanis, et al.    | 328   | 133       | 3/2/84              |
|             | A63       | 5,258,724       | 11/02/93 | Tanis, et al.    | 331   | 1 A       | 12/30/83            |

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|-------------|-----------|-----------------|----------|------------------|-------|-----------|---------------------|
|             | A64       | 5,661,269       | 08/26/97 | Fukazaki, et al. | 178   | 18        | 3/17/95             |
|             | A65       | 5,561,398       | 10/01/96 | Rasmussen        | 331   | 36        | 5/16/95             |
|             | A66       | 5,619,148       | 04/08/97 | Guo              | 327   | 3         | 10/10/95            |
|             | A67       | 6,016,332       | 01/18/00 | Smith, et al.    | 375   | 376       | 12/19/97            |
|             | A68       | 6,028,488       | 2/22/00  | Landman et al.   |       |           | 10/30/97            |
|             | A69       | 6,150,891       | 11/21/00 | Welland et al.   |       |           | 5/29/98             |
|             | A70       | 6,147,567       | 11/14/00 | Welland et al.   |       |           | 5/29/98             |
|             | A71       | 6,130,577       | 10/10/00 | Tamba et al.     |       |           | 7/11/96             |
|             | A72       | 3,983,485       | 9/28/76  | Stuart           |       |           | 2/28/75             |
|             | A73       | 6,137,372       | 10/24/00 | Welland          |       |           | 5/29/98             |
|             | A74       | 4,888,560       | 12/19/89 | Ogura            |       |           | 7/15/88             |
|             | A75       | 4,255,714       | 3/10/81  | Rosen            |       |           | 2/21/79             |
|             | A76       | 4,623,926       | 11/18/86 | Sakamoto         |       |           | 11/9/83             |
|             | A77       | 5,006,819       | 4/9/91   | Buchan           |       |           | 5/21/90             |
|             | A78       | 5,418,497       | 5/23/95  | Martin           |       |           | 7/5/94              |
|             | A79       | 5,698,469       | 12/16/97 | Mohwinkel et al. |       |           | 3/6/95              |
|             | A80       | 5,949,291       | 9/7/99   | Newland          | 331   | 18        |                     |
|             | A81       | 4,057,760       | 11/8/77  | Koch             | 325   | 455       | 6/7/76              |
|             | A82       | 5,831,482       | 11/3/98  | Salvi et al.     | 331   | 1 R       | 3/3/97              |
|             | A83       | 5,351,014       | 9/27/94  | Ichiyoshi        | 331   | 1 A       | 8/2/93              |
|             | A84       | 5,334,952       | 8/2/94   | Maddy et al.     | 331   | 1A        | 3/29/93             |

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| Exam. Init. | Ref. Des. | Document Number | Date    | Name            | Class | Sub Class | Filing Date if App. |
|-------------|-----------|-----------------|---------|-----------------|-------|-----------|---------------------|
|             | A85       | 4,771,248       | 9/13/88 | Crawford et al. |       |           | 12/22/86            |

**Foreign Patent Documents**

| Exam. Init. | Ref. Des. | Document Number | Date    | Name            | Class | Sub Class | Translation Yes/No |
|-------------|-----------|-----------------|---------|-----------------|-------|-----------|--------------------|
|             | B1        | JP359127408A    | 7/1984  | Shibata et al.  | H03C  | 3/22      | English Abstract   |
|             | B2        | JP357058403A    | 4/1982  | Urabe et al.    | 331   | 1R        | English Abstract   |
|             | B3        | JP403258103A    | 11/1991 | Kitamura et al. | 331   | 155       | English Abstract   |
|             | B4        | JP302298107A    | 12/1990 | Obayashi        | 331   | 107R      | English Abstract   |
|             | B5        | JP403070202A    | 3/1991  | Araki           | 331   | 155       | English Abstract   |
|             | B6        | JP04035302A     | 2/1992  | Nec Corp.       | H03B  | 5/20      | English Abstract   |

**Other Art (Including Author, Title, Date, Pertinent Pages, Etc.)**

| Exam. Init. | Ref. Des. | Citation                                                                                                                                                                                |
|-------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | C1        | Cong, et al., "Multigigahertz CMOS Dual-Modulus Prescaler IC" IEEE Journal of Solid-State Circuits, Vol. 23, No. 5; pp. 1189-1194; (October 1988)                                       |
|             | C2        | Duncan, et al., "A 1 GHz Quadrature Sinusoidal Oscillator," IEEE 1995 Custom Integrated Circuits Conference; pp. 91-94; (1995)                                                          |
|             | C3        | Craninckx, et al., "A 1.8-GHz CMOS Low-Phase-Noise Voltage-Controlled Oscillator with Prescaler," IEEE Journal of Solid-State Circuits, Vol. 30, No. 12; pp. 1474-1482; (December 1995) |
|             | C4        | Chang, et al., "A 1.2 GHz CMOS Dual-Modulus Prescaler Using New Dynamic D-Type Flip-Flops," IEEE Journal of Solid-State Circuits, Vol. 31, No. 5; pp. 749-752; (May 1996)               |

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|                                                                                                                                          |                                              |                            |
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| List of Patents and Publications for Applicant's<br><br><b>INFORMATION DISCLOSURE STATEMENT</b><br><br>(Use several sheets if necessary) | Applicant<br>David R. Welland and Caiyi Wang |                            |
|                                                                                                                                          | Filing Date:<br>Herewith                     | Group:<br>Unknown          |
| U.S. Patent Documents<br>See Pages 1-5                                                                                                   | Foreign Patent Documents<br>See Page 5       | Other Art<br>See Pages 5-6 |

| Other Art (Including Author, Title, Date, Pertinent Pages, Etc.) |           |                                                                                                                                                                                  |
|------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exam. Init.                                                      | Ref. Des. | Citation                                                                                                                                                                         |
|                                                                  | C5        | Rudell, et al., "Second Generation Multi-Standard Monolithic CMOS RF Transceiver," University of California, Berkeley, Slides 1 through 9 (June 1996)                            |
|                                                                  | C6        | Cho, et al., "Multi-Standard Monolithic CMOS RF Transceiver," University of California, Berkeley, Slides 1 through 26 (June 1996)                                                |
|                                                                  | C7        | Craninckx et al., "A 1.75-GHz/3-V Dual-Modulus Divide-by-128/129 Prescaler in 0.7- $\mu$ m CMOS," IEEE Journal of Solid-State Circuits, Vol. 31, No. 7; pp. 890-897; (July 1996) |
|                                                                  | C8        | National Semiconductor Corp., "LMX2330L/LMX2331L/LMX2332L PLLatinum™ Low Power Dual Frequency Synthesizer for RF Personal Communications," Datasheet (February 1998)             |
|                                                                  | C9        | Kral et al., "RF-CMOS Oscillators with Switched Tuning," Custom IC Conference, Santa Clara, CA, 4 sheets appearing on pp. 555-558 of the proceedings (May 1998)                  |

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